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NORTON AFB
CALIFORNIA

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 2301

AR2301

DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION AGENCY

2301 1

July 21, 1997

AFBCA/DD Norton
305 S. Tippecanoe Ave.
San Bernardino, CA 92408

US EPA-Region 9
Attn: John Lucey & Kathleen Salyer, SFD-8-1
75 Hawthorne Street
San Francisco, CA 94105

Cal/EPA, Dept. Toxic Substances Control
Attn: Manuel Alonzo
245 West Broadway, Suite 425
Long Beach, CA 90802

RE: Interim Record of Decision OU 3, IRP Site 19 Waste Drum Storage Area No. 1

I am providing for your records the final Interim Record of Decision OU 3, IRP Site 19 Waste Drum Storage Area No. 1. If you have any questions, please contact me at (909) 382-5027.

THOMAS J. BARTOL
BRAC Environmental Coordinator
Norton Operating Location

Attachment:
Interim Record of Decision OU 3, IRP Site 19 Waste Drum Storage Area No. 1

cc:
RWQCB, John Broderick
AFBCA/DD, Bob Butler
AFCEE/ERB, Gary Jungwirth
RAB, Don Goodin, Frank Vera, Jeff Wright, John Stevens
City of Riverside, Zahra Panahi
Upper Santa Ana Water Resources Assoc., Gene McMeans
IVDA, Bill Bopf
SBIAA, Jim Rohrer

INTERIM RECORD OF DECISION
OU 3, IRP SITE 19
WASTE DRUM STORAGE AREA NO. 1

United States Air Force Headquarters
Air Force Base Conversion Agency
Norton Air Force Base
California 92409

July 21, 1997

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ATTACHMENTS

FIGURES

TABLES

ACRONYMS

AF	Air Force
AFB	Air Force Base
Air Force	United States Air Force
ARARs	Applicable and/or relevant and appropriate requirements
CAL/EPA	California Environmental Protection Agency
CBA	Central Base Area
CDM Federal	CDM Federal Programs Corporation
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COC	Chemical of Potential Concern
DD	Decision Document
DOD	Department of Defense
E&E	Ecology & Environment
EIS	Environmental Impact Statement
FS	Feasibility Study
HAZWRAP	Hazardous Waste Remedial Actions Program
IRP	Installation Restoration Program
mg/kg	milligrams per kilogram
NCP	National Oil and Hazardous Subtstances Pollution Contingency Plan
OSWER	Office of Solid Waste and Emergency Response
OU3	Operable Unit No. 3
PCB	polychlorinated biphenyls
pCi/g	pico Curie per gram
pCi/L	pico Curie per liter
ppm	parts per million
RAB	Restoration Advisory Board
RI	Remedial Investigation
ROD	Record of Decision
TCE	Trichloroethylene
TCG	Target Clean-up Goal
TPH	Total Petroleum Hydrocarbons
µg/kg	micrograms per kilogram
USEPA	United States Environmental Protection Agency

***

DECLARATION

SITE NAME AND LOCATION

Norton Air Force Base
Operable Unit Number 3
IRP Site 19 - Waste Drum Storage Area No. 1
San Bernardino, California

STATEMENT AND OF BASIS PURPOSE

This decision document presents the selected interim remedy for the Installation Restoration Program (IRP) site 19 - the Waste Drum Storage Area No. 1 at Norton Air Force Base. The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Part 300). This decision is based on information contained in the administrative record for the site.

ASSESSMENT OF THE SITE

Threatened releases of hazardous substances from IRP site 19, if not addressed by implementing the response actions selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health welfare, or the environment.

DESCRIPTION OF THE REMEDY

The response action addressed in this ROD addresses the principal public health and environmental threats due to polychlorinated biphenyls (PCBs) in site soil by precluding access to the soils and preventing uncontrolled releases. Through implementation of a deed restriction, access to contaminated soils will be prevented. The remedy is deemed an interim measure and an additional remedy may be considered when it is found necessary to remove the concrete apron currently covering the contaminated soil.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The remedy does not involve treatment at this time, but prevents mobility of contaminants through the continued use of an existing 24-inch concrete layer over the contaminated soils. Because contaminated soils will remain in place, controlled by a deed restriction, the 5 year review will be conducted on an ongoing basis to ensure that the remedy continues to provide adequate protection of human health and the environment.

This Interim ROD has been reviewed and approved by:

Signature — Date: October 9, 1996

Director
Air Force Base Conversion Agency

Signature — Date: 6/25/97

Chief
Federal Facilities Cleanup Branch
United States Environmental Protection Agency, Region IX

Signature — Date: July 7, 1997

Chief of Southern California ~~Project Management~~ Operations, Office of Military Facilities
Department of Toxic Substances Control

1.0 SITE NAME, LOCATION, AND DESCRIPTION

1.1 LOCATION

Norton Air Force Base (AFB) (referred to herein as the "base" or "Site") is located in the city of San Bernardino, San Bernardino County, California, 55 miles east of Los Angeles and 60 miles west of Palm Springs (Fig. 1). Site 19 is located on the southern part of the Central Base Area (CBA) just north of taxiway 8 and south of Building 763. Site 19 is currently covered by a 24-inch thick concrete apron of the aircraft flightline (Fig. 2).

1.2 POPULATION

The population of San Bernardino County is 1,418,380 (U.S. Census, 1990), and consists of both english- and spanish-speaking citizens. Currently only the officer's housing area of the base is occupied by military personnel.

1.3 LAND USE

Current Land Use. Current land use at Norton AFB includes commercial and residential activities. A portion of the base is still used for officer's housing. The airfield is being used for public and commercial activities while the base is being converted to warehousing and office park usage.

Land surrounding Norton AFB includes areas of residences, light and heavy industry, and agriculture. Residential areas are located to the north and west. Light industrial areas are located to the north, east, and to the southwest.

Future Land Use. Norton AFB was closed by the Department of Defense (DOD) on March 31, 1994. The property will be classified for some residential activities, but primarily for commercial and industrial use after disposal. The area that incorporates IRP site 19 has been classified for aviation and aviation support activities.

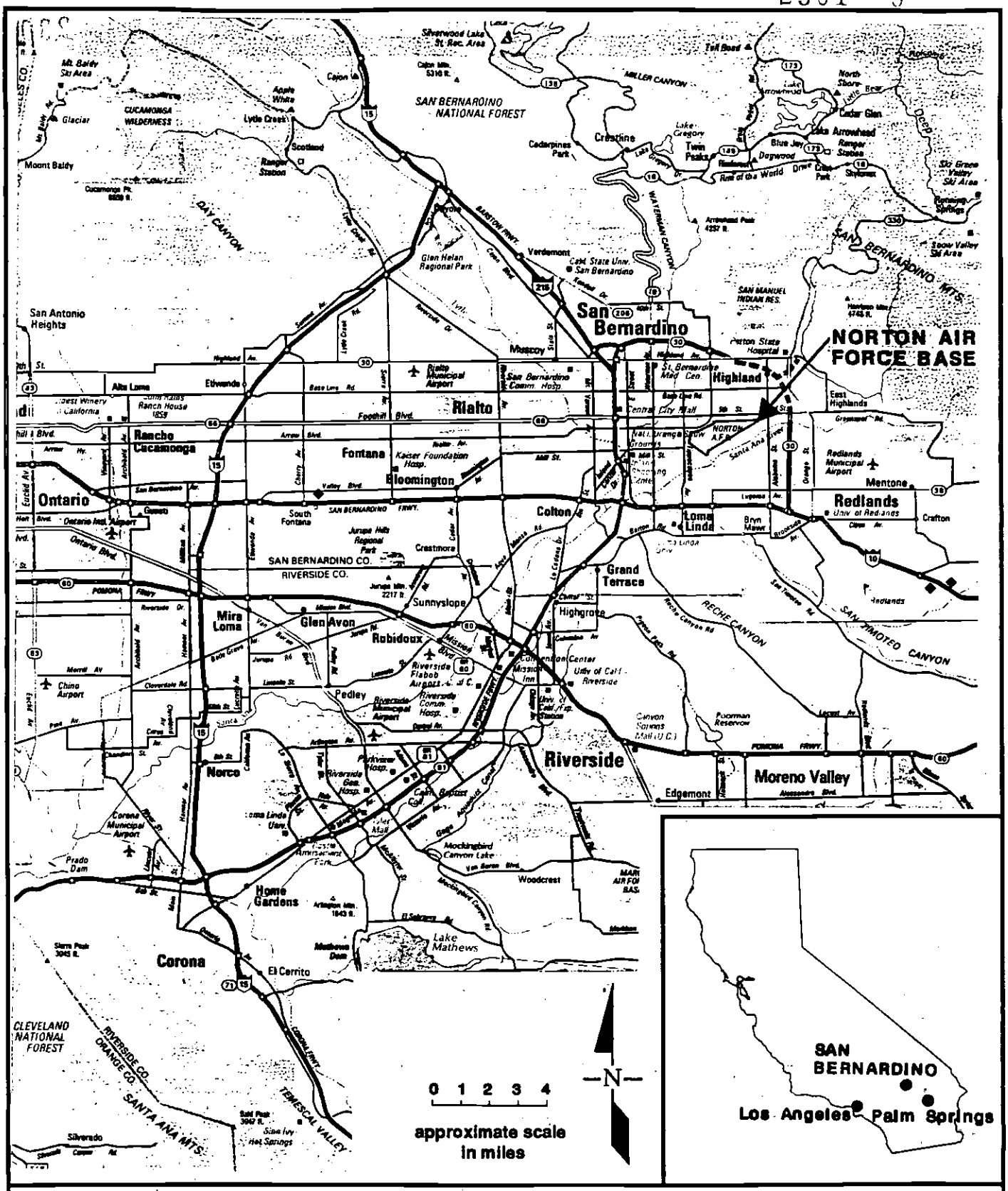
1.4 CLIMATE

The San Bernardino Valley is characterized by a semi-arid environment. The yearly average high is 78°F and the yearly low 49°F. The average annual rainfall at Norton AFB is 12.72 inches.

Prevailing winds at Norton AFB are from the northwest. Annual average wind speed from the west is 3 knots; maximum wind speed is 69 knots.

1.5 GEOLOGY

Norton AFB is located on a large apron of alluvium, characterized by great thickness, rapid facies changes, and a wide range of fragment sizes. The stratigraphy consists of



Regional Map Showing Location of Norton AFB

CDM FEDERAL PROGRAMS CORPORATION
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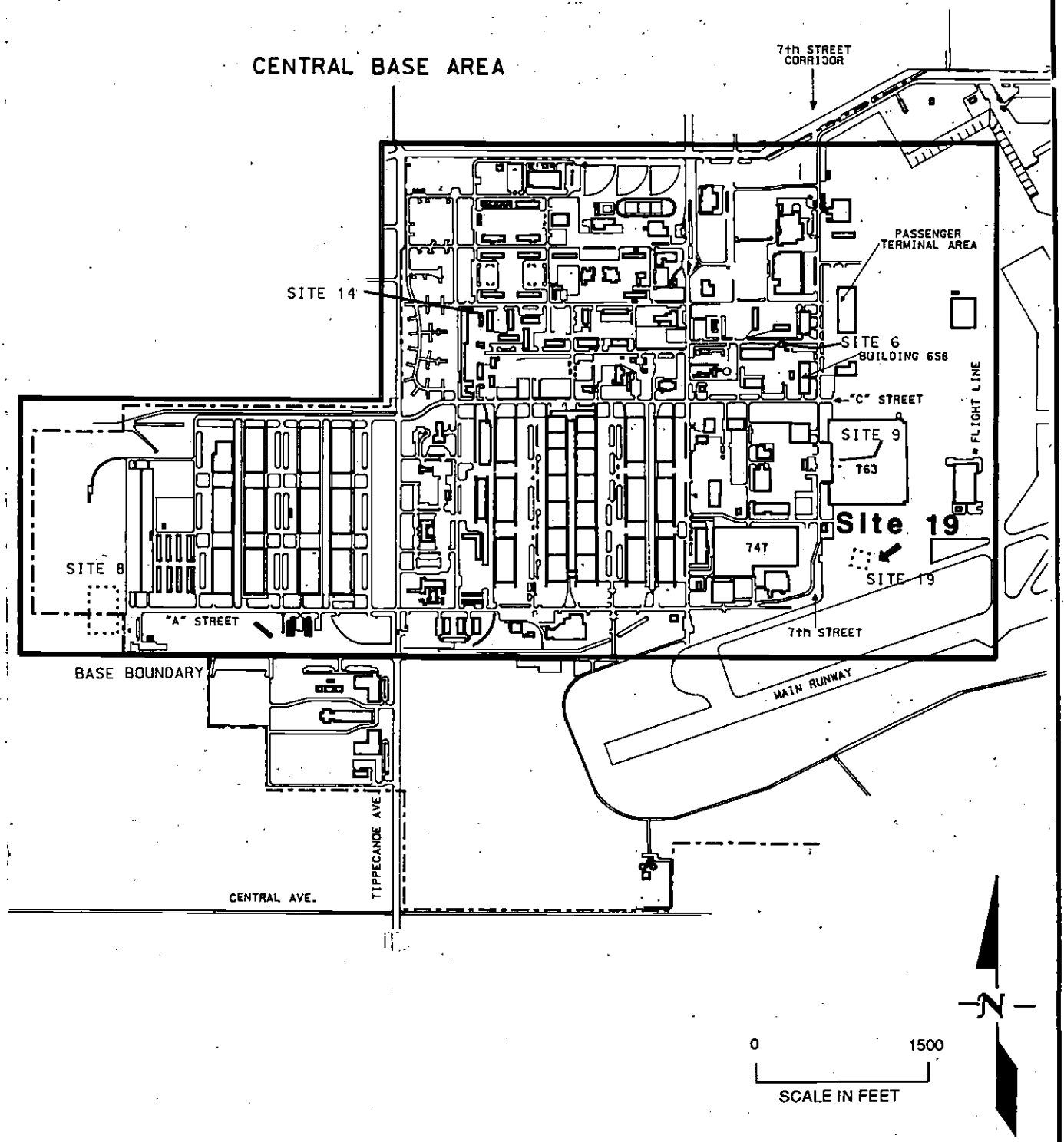
Figure No. 1

2301 10



Central Base Area Features
Norton Air Force Base

CDM FEDERAL PROGRAMS CORPORATION
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Figure No. 2

unconsolidated water-bearing deposits underlain by consolidated, virtually non-water bearing rocks. Sediments underlying Norton AFB consist of unconsolidated, relatively undisturbed gravels, sands, silts, and clays. The lithology varies across the base.

1.6 SOIL

Surface and subsurface soils at Norton AFB consist of loamy sands and sandy loams. The soils are generally quite permeable and exhibit limited run-off and water erosion potential.

1.7 SURFACE WATER

The main surface water features near Norton AFB are City Creek, Warm Creek, the Twin Creek flood control channel, and the Santa Ana River. The Santa Ana River flows intermittently southwest along the southern base boundary. Site 19 is not within the 100 year flood plain.

Natural surface run-off flows into underground storm drains and natural surface drainages at Norton AFB. There are eleven discharge points.

1.8 HYDROGEOLOGY

The groundwater aquifer system beneath Norton AFB is part of the Bunker Hill hydrologic basin that is defined by three water-bearing zones (the upper, middle, and lower) and three confining members (the upper, middle, and lower). The upper confining member, which locally supports perched water zones, covers all but the eastern half of the base. Regional groundwater flows towards the southwest. Recharge is supplied by runoff from the San Bernardino Mountains.

1.9 PRODUCTION WELLS

The aquifer system provides drinking water in addition to water for agricultural and commercial uses. The upper water-bearing zone has been affected by Norton AFB operations, but not by contaminants from site 19. Drinking water is derived principally from the middle and lower water-bearing zones.

1.10 THREAT OF SITE

The selected remedy addresses the principal threat from soils contaminated by PCBs.

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

Norton AFB was activated in March 1942 as an engine repair center for the Army Air Corp, U.S. Navy, and private industry aircraft. The base became a Military Airlift Command base in 1966. In 1968, the Aerospace Audiovisual Services established its headquarters at the base. Norton AFB provided airlift and maintenance capabilities for air and combat units world-wide but was officially closed on March 31, 1994.

Site 19 was formerly used as a drum storage area and an aircraft washing facility (see Fig. 2). Drums of fuels, oils, electroplating solutions, trichloroethylene (TCE) and trichloroethane sludge, and cyanide waste solutions were stored on a bare (earthen) fenced lot. The area south of Building 763 (see Figure 2) was the general location of the original aircraft washing facility. This facility was removed in 1966, and the area was resurfaced with 24 inches of concrete to become part of the flightline.

Former waste disposal, handling, and discharge practices have resulted in soil contamination. Documents presenting site investigation results are included in Appendix A, the Administrative Record Index. A chronology of important site activities and investigations that support remedy selection for the site 19 Interim ROD are as follows:

June 1980	DOD issues the Defense Environmental Quality Program Policy Memorandum 80-6 requiring the identification of hazardous waste sites.
October 1982	Norton AFB issues the Phase I Records Search. Twenty IRP sites including site 19, of potential contamination are identified.
August 1987	Norton AFB is placed on the United States Environmental Protection Agency's (USEPA) National Priorities List.
September 1987	Norton AFB issues the Phase II Confirmation/Quantification, Stage 2 Final Report. Extent of contamination investigated at site 19.
December 1988	Norton AFB issues the Stage 3 Final Report. Twenty-one of the 22 IRP sites are investigated.
June 1989	The Air Force (AF) signs the Norton AFB Federal Facility Agreement with the U.S. Environmental Protection Agency and the State of California.
March 1991	Norton AFB issues the Comprehensive Remedial Investigation and Feasibility Study (RI/FS) Work Plan that identifies site investigation field work to complete characterization of site 19.

February 1993	Norton AFB finalizes the Remedial Investigation Report for the Installation Restoration Sites RI Report presenting environmental data for site 19.
November 1994	Draft Interim Record of Decision for IRP Site 19 released to the USEPA and California EPA for review on November 3.
January 1995	Air Force receives comments from the California Department of Toxic Substances Control on the Draft Interim ROD on January 10.
May 1995	USEPA concurs with the decision for the need for a deed restriction for IRP site 19 when it provided comments on the draft Soil Target Cleanup Goal Technical Memorandum to the Air Force on May 31.
January 1996	California EPA requests clarification from the Air Force on the entities who will be responsible for site remediation should the land use decision be changed and the concrete removed.

3.0 COMMUNITY PARTICIPATION

Norton AFB has conducted the following activities under the RI/FS process:

April 1990	Release of Community Relations Plan. Establish and notify community of the location of information repositories.
July 1990	Notification and request for participation in Community Relations Workshop to discuss the Community Relations Plans and ensure community involvement in the upcoming RI/FS.
September 1990	Release of Fact Sheet discussing planned field activities for IRP Sites Remedial Investigation and information on obtaining Technical Assistance Grants.
June 1991	Release of Fact Sheet discussing the RI, on-going investigations, the groundwater treatability study, the TCE Source Investigation, and information on how the public can become involved.
January 1994	Restoration Advisory Board established to obtain public input for base cleanup issues.
July 17, 1996	Availability of the Site 19 Proposed Plan announced in local newspapers.
July 31, 1996	Beginning of the public comment period on the Site 19 Proposed Plan.
August 27, 1996	Community meeting held at the San Bernardino City Council Chambers.
August 30, 1996	Close of the public comment period. Public comments are provided in Appendix B.

4.0 SCOPE AND ROLE OF THE OPERABLE UNIT

This Interim ROD addresses the contaminated soils at site 19. Site 19 is defined as soil containing PCBs above the CERCLA PCB Cleanup Policy action level of 10 mg/kg for industrial sites. In addition, because PCBs are the primary contaminant of concern at site 19, the site is defined as soil containing PCBs above the soil target clean-up goal (TCG) of 0.19 and 0.025 milligrams per kilogram (mg/kg) for industrial and residential exposures respectively. Soil TCGs were developed by the Air Force in conjunction with the USEPA and the California Environmental Protection Agency (CAL/EPA) (CDM Federal, 1995). PCBs in soils pose the principal threat to public health and the environment because of the risks from possible ingestion or dermal contact with the soils. Should the concrete be removed, the risk is predicted at 4.0×10^{-5}. However, there is no current threat to human health from PCBs provided there are no activities (i.e., concrete apron removal and soil excavation) disturbing the subsurface. As long as the concrete apron is in place, the pathway is incomplete. The purpose of this ROD is to address soil sources that pose a risk to public health via direct contact and to prevent future exposure to the contaminated soils.

The Administrative Record Index is presented in Appendix A.

SOIL CONTAMINATION

PCBs have been identified as the primary contaminant of concern in soils at site 19. The highest concentration of PCBs detected has been 62.4 mg/kg (CDM Federal, 1993). Secondary contaminants of concern, which were detected above the soil TCGs, include ethylbenzene, xylene, and chromium with maximum concentrations of 12 mg/kg, 180 mg/kg, and 209 mg/kg, respectively. These contaminants were detected above their respective TCGs in only one or two samples. All other sample results were below the respective TCGs. Other constituents detected in the soil that were below the soil TCGs include TCE, 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, cadmium, copper, lead, nickel and zinc.

GROUNDWATER CONTAMINATION

PCBs are insoluble in water and adsorb strongly to soil particles. Site 19 is covered by at least 24 inches of concrete preventing surface water infiltration. Therefore, PCB soil contamination at site 19 does not threaten groundwater resources.

5.0 SUMMARY OF SITE CHARACTERISTICS

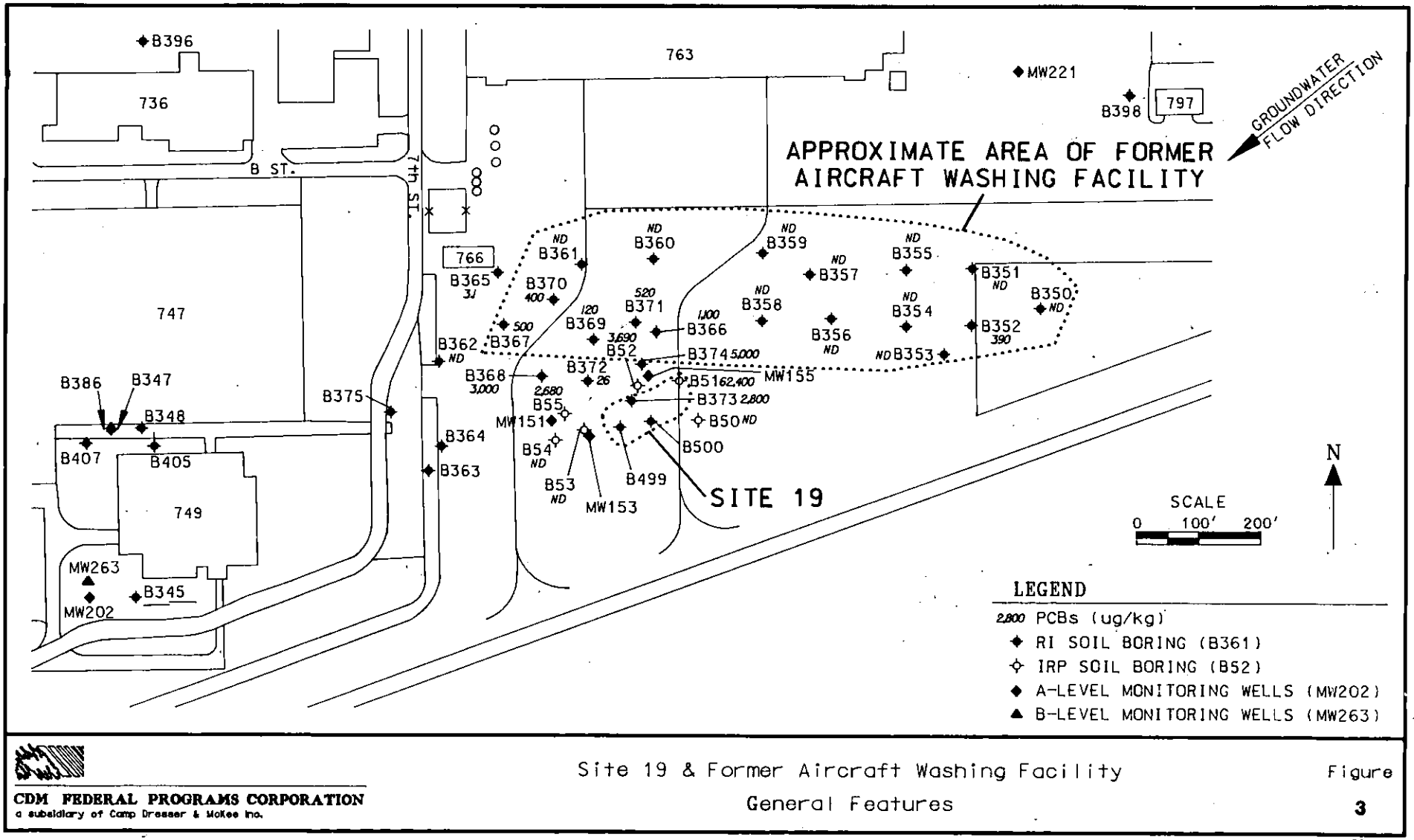
5.1 SOURCES OF CONTAMINATION

Extent of soil contamination at IRP site 19 was investigated during the IRP Phase I and II investigations (1985 to 1986) and during the IRP sites remedial investigation (1992 to 1993). A total of 29 shallow soil borings have been drilled at site 19 and 67 shallow (i.e., less than 5 feet below ground surface) soil samples analyzed for PCBs and other constituents. PCBs were detected in 23 of the 67 samples analyzed. Only two of the samples exceeded 10 mg/kg, with a maximum concentration detected of 62.4 mg/kg. The majority of PCB detections were in the 0 to 6 inch interval below the concrete. PCB soil data collected for site 19 are summarized in Table 1, with maximum concentrations detected in each borehole shown on Fig. 3. Table 2 summarizes the maximum concentrations detected and soil TCGs for constituents other than PCBs detected in soil samples at site 19.

TABLE 1 SUMMARY OF SITE 19 PCB SOIL DATA

	IRP Phase II/Stage 2 & 3 Results (E&E, 1988) Results in mg/kg[1]	IRP RI Site 19 Results (CDM Federal, 1993) Results in mg/kg
No. of Soil Borings	6	23
No. of Samples Analyzed	16	51
No. of Samples with PCBs	3	20
Range of PCB Concentrations	2.68 to 62.4	0.003 to 28.0

[1] mg/kg = milligrams per kilogram



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Site 19 & Former Aircraft Washing Facility
General Features

Figure 3

FS94.DGN

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TABLE 2 SUMMARY OF SITE 19 SOIL DATA (EXCLUDING PCBs)

CONSTITUENT DETECTED	FREQUENCY OF DETECTIONS ABOVE NORTON AFB BACKGROUND[1]	MAXIMUM DETECTION FROM IRP RI SITE 19 RESULTS (CDM Federal, 1993)	SOIL TARGET CLEAN-UP GOALS FOR INDUSTRIAL SITES (CDM Federal, 1995; USEPA, 1994)
TCE	2/24	6 µg/kg (.006 mg/kg)	3.3 mg/kg for human health protection
Ethylbenzene	1/24	12,000 µg/kg (12 mg/kg)	10 mg/kg
Xylene	2/24	180,000 µg/kg (180 mg/kg)	20 mg/kg for groundwater protection and 980 mg/kg for human health protection
1,2 - Dichlorobenzene	1/24	710 µg/kg (.71 mg/kg)	4.3 mg/kg
1,2,4 - Trichlorobenzene	1/24	710 µg/kg (.71 mg/kg)	5,000 mg/kg
Cadmium	2/24	8.6 mg/kg	650 mg/kg
Chromium	3/24	209 mg/kg	150 mg/kg
Copper	1/24	35.4 mg/kg	63,000 mg/kg
Lead	1/24	127 mg/kg	1,000 mg/kg
Nickel	1/24	128 mg/kg	10,680 mg/kg
Zinc	2/24	196 mg/kg	100,000 mg/kg

1. Non-detect used as background for organic contaminants.
µg/kg = micrograms per kilogram, mg/kg = milligrams per kilogram

5.2 CONTAMINATION AND AFFECTED MEDIA

SOILS

The soil results of the remedial investigations indicate that PCBs are present throughout much of the area of site 19. It is suspected that regrading of the site 19 area to construct the flightline apron redistributed the PCB-contaminated soil. Other constituents, such as xylene and ethylbenzene, were very localized horizontally and vertically (i.e., present in only one or two samples), and may have represented an isolated fuel spill on the aircraft flight apron. Chromium was present at 209 mg/kg in only one sample; all other chromium results were less than 84 mg/kg. Thus the 209 mg/kg value appears to be an outlier and the soils at the site are not affected by the element.

PCBs are suspected human carcinogens. The primary route of exposure would be adsorption through the skin from direct contact with contaminated soil, ingestion of soil adsorbed to skin, and inhalation of fugitive dust. All pathways for contact with PCBs or other constituents currently are incomplete due to the presence of the 24 inches of concrete forming the flightline apron over site 19.

GROUNDWATER

Since PCBs are relatively immobile in soil and the site is covered with concrete and depth to groundwater is 90 feet below ground surface, site 19 does not appear to be affecting the groundwater quality.

6.0 SUMMARY OF RISK ASSESSMENT

Using data collected during the IRP Sites RI[2], the baseline risk assessment was prepared to evaluate the potential human health risks associated with the site 19 in the absence of any remedial (corrective) action. The no-action alternative is evaluated in accordance with § 300.430(d) of the NCP.

6.1 HEALTH RISKS

Chemicals of concern were selected based on frequency of detection, toxicity, concentration in media, and comparison of levels found at the site to background concentrations. PCBs were the only contaminant detected at site 19 that was deemed a contaminant of concern in the baseline risk assessment. The exposure point concentration for PCBs was calculated at 5.4 mg/kg and the risk determined to be 4.0×10^{-5}.

Constituents, other than PCBs, that were potential chemicals of concern because concentrations were detected above the soil TCGs include ethylbenzene, xylene, and chromium. These constituents were eliminated as primary chemicals of concern because elevated concentrations were detected infrequently and thus they did not appear to represent widespread contamination. The exposure point concentrations for the three contaminants were below their respective TCGs. Other constituents detected in the soil, but eliminated as chemicals of concern because their maximum concentrations were reported below the soil TCGs, include TCE, 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, cadmium, copper, lead, nickel and zinc (see Table 2).

Because land use plans for Norton AFB identify continued use of the base as an airfield and other commercial purposes, the potential receptor for the site 19 risk assessment was the light industrial worker. The principal exposure pathways by which this receptor could potentially be exposed to site contaminants are inhalation of fugitive dust, ingestion of contaminants in soils, and dermal contact with contaminants in soils. However this pathway is currently incomplete because the site is covered with 24 inches of concrete. Therefore, site 19, as it currently exists, poses no risk to human health. This conclusion will need to be revisited should the decision be made to remove the concrete apron.

6.2 ECOLOGICAL RISKS

There are no streams or ponds immediately adjacent to site 19. Controlled storm water drainage at Norton AFB generally consists of surface flow to diversion structures and collection pipes discharging to local surface streams. The Santa Ana River wash is immediately south of the base. There are two jurisdictional wetlands on the western portion of Norton AFB. Neither the river wash nor the wetlands are associated with site 19 and no surface water to wetlands pathway exists.

2All RI data have been validated and the quality is acceptable to support the recommendation of this ROD.

No threatened or endangered plant species are associated with site 19. The burrowing owl, listed as a State of California Species of Special Concern[3], occurs as a year round resident near runways and buildings at Norton AFB; there are no applicable and or relevant and appropriate requirements (ARARs) for Species of Special Concern. The burrowing owl is not present in any buildings near site 19 nor has it been observed near the flightline area of site 19.

The distance from site 19 to the nearest vegetation is 210 feet. This vegetation represents a clear zone adjacent to the runway, which is mowed to maintain a low cover. The surface areas of Norton AFB associated with site 19 are all paved or urbanized/landscaped and there is no discharge of groundwater to the surface at the present time. Therefore, there is no exposure pathway by which a contaminant could move from a surface source to an ecological receptor in the environment. In addition, it is not likely that an exposure point to ecological receptors exists due to continued land use as an airfield.

6.3 CONCLUSIONS

Although the exposure pathway for site 19 is incomplete, the actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment. Therefore, deed restrictions are required to preclude inadvertent or intentional removal of the concrete without first notification of the Air Force, USEPA, and CAL/EPA of the action.

The risk to ecological receptors appears to be low. There is no available pathway from the site 19 contaminants to ecological receptors.

[3]Species of Concern are not protected under the Endangered Species Act.

7.0 DESCRIPTION OF ALTERNATIVES

The remedial alternatives for soil that have been evaluated through a detailed analysis in the site 19 ROD are presented below. PCBs in soil pose a potential future threat to public health due to ingestion, inhalation, and dermal contact. There are three PCB shallow subsurface soil alternatives.

ALTERNATIVE 1A - NO ACTION

This alternative, required for consideration by the NCP, involves no remedial actions to address shallow subsurface soil contaminated with PCBs. No action is implemented. This alternative will not comply with CERCLA because PCBs above health based standards will be left potentially uncontrolled in soils.

ALTERNATIVE 1B - DEED RESTRICTIONS

Prior to sale or transfer of any Norton AFB property overlying site 19, the AF will record a land use restriction in accordance with California Health and Safety Code §25230. This will serve as an institutional control to prohibit removal of the concrete runway apron and preclude soil excavation in a manner that would not comply with Federal and State regulations. It will also provide notice of this restriction in any purchase, lease, or other agreement relating to that property.

ALTERNATIVE 1C - EXCAVATION AND OFF-SITE DISPOSAL

- Demolition and reconstruction of existing facilities
- Excavation of soil containing PCBs above the cleanup standard
- Backfill of excavation with clean import or borrow soil
- Testing of excavated soil
- Transportation of soil offsite by licensed transporter
- Disposal offsite to a licensed Subtitle C disposal facility

Shallow subsurface soil containing PCBs above the cleanup standard would be excavated. Excavation would require demolition of part of the flightline to access the affected soil. During excavation, dust suppression measures will be taken to control dust emissions. Following excavation, the areas would be backfilled with clean import or borrow soil, compacted, and restored to its previous condition.

The excavated soil will be immediately loaded onto trucks licensed for the transport of contaminated soils, and transferred to a licensed Subtitle C disposal facility. The soil will be treated at the disposal facility if the soil does not meet the disposal standards. The disposal facility will be identified during the remedial design phase. Soil will be transported in compliance with regulations pertaining to off-site transportation. Selection of a disposal

facility may affect transportation and disposal costs, but will not affect selection of this remedy. The cost estimate for excavation, disposal and replacement of the concrete apron is $1.7 million. The majority of the costs lie in the difficult task of removal of 24 inches of reinforced concrete.

Residual PCBs below cleanup standards may remain at the site. These levels will not pose a risk to human health or the environment, therefore long-term management or controls for any residual PCBs are not necessary. The estimated time to implement this remedy and to meet the cleanup standard is 3 months.

8.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

Media-specific alternatives are evaluated to determine which alternative provides the "best balance" of tradeoffs with respect to the nine evaluation criteria required by the NCP and CERCLA Section 121:

(1) Overall Protection of Human Health and the Environment
(2) Compliance with ARARs
(3) Long-term Effectiveness and Permanence
(4) Reduction of Toxicity, Mobility, or Volume Through Treatment
(5) Short-term Effectiveness
(6) Implementability
(7) Cost
(8) State Acceptance
(9) Community Acceptance.

8.1 THRESHOLD CRITERIA

Overall Protection of Human Health and the Environment

Alternative 1B would be protective of human health and the environment because it would preclude removal of the concrete apron through lease restrictions thereby preventing unsuspected contact with or removal of contaminated soil. Alternative 1C would offer the greatest protection through removal of the contaminated soil from the site and placement at a controlled facility. Alternative 1A is potentially unprotective because it would allow the possibility of uncontrolled soil contact and soil removal from the site if the concrete apron is removed.

Compliance with ARARs

CERCLA guidance allows the leaving in place PCB contaminated material containing greater than 10 mg/kg of PCBs as long as access to the material containing PCBs is limited. Because the 24 inches of concrete meets the CERCLA definition for limited access, Alternative B would comply with CERCLA.

Alternative 1C could be implemented to address all state and federal ARARs. Soil containing greater than 50 mg/kg PCBs would be considered a Resource Conservation and Recovery Act hazardous waste under State of California regulation and thus a portion of the site 19 soil would require disposal in a hazardous landfill if excavated. Alternative 1A would not comply with CERCLA because it would leave in place soil exceeding cleanup goals in a potentially uncontrolled manner.

8.2 PRIMARY BALANCING CRITERIA

Long-Term Effectiveness

Long-term effectiveness for alternatives 1A and 1B would remain as long as the concrete apron remains in place. Once the concrete apron is removed, neither alternative would be protective. Alternative 1C would offer long-term protectiveness at the site because all soil exceeding health-based standards would be removed. Because the contaminants are not destroyed, risk is transferred to the facility receiving the soil.

Reduction of Toxicity, Mobility, or Volume Through Treatment

None of the alternatives involved treatment, therefore reduction of toxicity or volume would not be attained. As long as the concrete apron remains, mobility of contaminants will be controlled.

Implementability

All of these alternatives are implementable.

Short-Term Effectiveness

Alternatives 1A and 1B would be equally protective in the short-term because the concrete runway apron will prevent soil access. Measures to prevent direct contact and dust protection will need to be implemented if soil excavation is done under alternative 1C.

Costs

There are no costs related to implementing alternatives 1A and 1B. The cost of removal and replacement of the concrete cover would be $1,700,000. Table 3 presents a summary of the costs by major activity. These activities reflect the removal of the apron to access contaminated soils, for soil removal and disposal, soil replacement, and for concrete apron replacement. The costs do not include engineering design, oversight, or confirmation sampling.

8.3 MODIFYING CRITERIA

Community Acceptance

It is assumed that alternative 1B will be acceptable to the local community.

State Acceptance

It is assumed that alternative 1B will be acceptable to the State.

TABLE 3 SUMMARY OF COSTS

COST COMPONENT	UNIT	QUANTITY	UNIT COST	TOTAL COST
Concrete Demolition	CY	6,000	$164[1]	$984,000
Concrete Removal and Offsite Disposal	CY	6,000	$36.75[2]	$220,500
Soil Excavation	CY	9,000	$3.94[1]	$35,460
Offsite Disposal of Soil	CY	9,000	$36.75[2]	$330,750
Replace Excavated Soil with Clean Fill	CY	9,000	$5.45[3]	$49,050
Place Concrete over area	SF	75,000	$1.10[1]	$82,500
TOTAL COST				**$1,702,260**

1. Means, 1995
2. BKK Landfill, 9/95
3. Corona Dee Gee, 8/95

9.0 SELECTED REMEDY

The selected remedy is the implementation of deed restrictions (Alternative 1B) for the site 19 area. The site is currently covered by 24 inches of concrete, which is a flightline apron used for parking aircraft. Future use for the area will be continued use for aircraft parking. There are no plans to remove or replace the concrete due to the costs for concrete removal and replacement and the fact that the current concrete layer is adequate for its intended purpose. The selected remedy therefore will be implemented to prevent uncontrolled access to site soils. The Air Force recognizes that should land use plans change or the need to replace the concrete be determined, this decision will need to be re-evaluated and a soil removal action be fully considered.

Deed restrictions, in accordance with California State Law, will be written into all leases and property deed transfer documents. Deed restrictions will remain in place as long as contaminated soils remain at the site.

The Air Force has entered into a 55-year lease with the San Bernardino International Airport Authority for the airfield portion of the former Norton AFB for the specific purpose of operating and using the airfield for aviation and aviation support activities. During this period the Air Force will work with the lessee or its successor to ensure that the cement cap is protective of human health and the environment. This would involve regular maintenance and repair of the concrete by the lessee. Should any new lessee or occupant change the specified land use of the area above site 19 that would involve removal of the concrete, it will be the responsibility of that entity to reevaluate the site and perform any required remediation in compliance with appropriate state and federal regulations.

10.0 STATUTORY DETERMINATION

This section presents the manner in which the selected remedy meets human health protectiveness, cost-effectiveness, and treatment of waste considerations.

10.1 PROTECTIVENESS OF HUMAN HEALTH AND THE ENVIRONMENT

The selected remedy is protective through the identification of the area of contaminated soils and the prevention of removal of the concrete apron and contaminated soils in an uncontrolled manner.

10.2 COMPLIANCE WITH ARARs

The selected remedy will comply with the CERCLA requirement to limit access of workers to media containing PCBs.

10.3 COST EFFECTIVENESS

The selected remedy does not result in any unnecessary cost expenditures prior to the time it is determined that the concrete should be removed or replaced. There are no human health or environmental threats at present and cost expenditures for an immediate soil removal remedy are not warranted.

10.4 UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES (OR RESOURCE RECOVERY & TECHNOLOGIES) TO THE MAXIMUM EXTENT PRACTICABLE

The selected remedy is not a permanent solution. The selected remedy allows the continued use of the existing concrete apron as a cost savings issue. Once the decision to remove the apron is made, then this criterion will need to be further addressed as part of the soil removal and treatment action.

10.5 REFERENCE FOR TREATMENT AS A PRINCIPLE ELEMENT

The selected remedy does not involve treatment. Treatment cannot be addressed until the concrete apron is removed or an in situ PCB treatment technology is developed.

11.0 DOCUMENTATION OF SIGNIFICANT CHANGES

The proposed plan announcing this decision was released on July 17, 1996. There were no significant issues raised by the public or the regulatory agencies that have affected the Air Force Decision. Therefore there are no significant changes in the plan to implement the selected remedy.

12.0 BIBLIOGRAPHY

CDM Federal Programs Corporation (CDM Federal), 1993a. *Remedial Investigation Report, Installation Restoration Program Sites Operable Unit (15 Sites).*

CDM Federal Programs Corporation (CDM Federal), 1995a. *Development and Evaluation of Soil Target Cleanup Goals Industrial/Commercial Reuse Scenario IRP Sites Cleanup.*

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Ecology and Environment, Inc. (E&E, Inc.), 1987. *Phase II - Confirmation/Quantification, Stage 2 Technical Report.*

_____, 1989. *Installation Restoration Program, Stage 3.*

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Roy F. Weston, Inc., 1985. *Phase II, Stage I - Problem Confirmation Study.*

United States Air Force, 1993c. *Environmental Impact Statement.*

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United States Environmental Protection Agency, 1990. *Remedial Actions for Superfund Sites with PCB Contamination.* (OSWER Dir/. 9355-4-01).

_____, 1994. *Region IX Preliminary Remediation Goals (1994), Second Half (August).*

ATTACHMENT A

ADMINISTRATIVE RECORD INDEX FOR THE IRP SITE 19 ROD

ADMINISTRATIVE RECORD INDEX FOR THE IRP SITE 19 RECORD OF DECISION

DOCUMENT DATE	SUBJECT OR TITLE	AUTHOR	FILE NUMBER
10/82	Phase I, Records Search	Engineering-Science, Inc.	2
7/85	Phase II, Stage 1, Final Technical Report, Problem Confirmation/Quantification Study, Volume I of II	Roy F. Weston, Inc.	11
7/85	Phase II, Stage 1, Final Technical Report, Problem Confirmation/Quantification Study, Volume II of II	Roy F. Weston, Inc.	12
8/8/86	Work Plan for Site 17	IT Corporation	37
9/9/86	Phase IVA, Remedial Action Plan, Task Report No. 2, Screen Control Measures, Site 17	IT Corporation	40
10/10/86	Phase IVA, Remedial Action Plan, Task Report No. 11, Field Investigation Report, Site 17	IT Corporation	42
11/14/86	Regional Water Quality Control Board letter to Norton AFB on Cleanup and Abatement Order for Industrial Wastewater Treatment Plant Sludge Drying Beds	James R. Bennet, California Regional Water Quality Control Board	30
1/29/87	Regional Water Quality Control Board Letter to Norton AFB Approving Disposal of Dried Sludge to Class II Landfill	James R. Bennet, California Regional Water Quality Control Board	53
3/10/87	Base Letter to Regional Water Quality Control Board Providing Status of Compliance with Cleanup and Abatement Order	Col. David A. Voigt, 63 ABG/CC	59
9/87	Phase II, Stage 3, Work Plan	Ecology & Environment, Inc.	82
9/87	Phase II, Stage 3 Quality Assurance Project Plan	Ecology & Environment, Inc.	83
9/87	Phase II, Stage 2, Confirmation/Quantification Report, Volume I of VI	Ecology & Environment, Inc.	84

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ADMINISTRATIVE RECORD INDEX FOR THE IRP SITE 19 RECORD OF DECISION (continued)

DOCUMENT DATE	SUBJECT OR TITLE	AUTHOR	FILE NUMBER
9/87	Phase II, Stage 2, Confirmation/Quantification Report, Volume II of VI, Appendices A-G	Ecology & Environment, Inc.	85
9/87	Phase II, Stage 2, Confirmation/Quantification Report, Volume III of VI, Appendix H, Soils Data	Ecology & Environment, Inc.	86
9/87	Phase II, Stage 2, Confirmation/Quantification Report, Volume IV of VI, Appendix H, Water Data	Ecology & Environment, Inc.	87
9/87	Phase II, Stage 2, Confirmation/Quantification Report, Volume V of VI, Appendix H, Water Data	Ecology & Environment, Inc.	88
9/87	Phase II, Stage 2, Confirmation/Quantification Report, Volume VI of VI, Appendices I-M	Ecology & Environment, Inc.	89
1/12/89	Informal Technical Information Report, Volume II of II, QA/QC Summary, Chain-of-Custody Forms, Well Information, Field Sampling Forms	EA Engineering, Science, and Technology, Inc.	173
11/89	Phase II, Stage 3, Final Draft Report, Sep 87 - Dec 88, Volume I of III	Ecology & Environment, Inc.	253
11/89	Phase II, Stage 3, Final Draft Report, Sep 87 - Dec 88, Volume II of III	Ecology & Environment, Inc.	254
11/89	Phase II, Stage 3, Final Draft Report, Sep 87 - Dec 88, Volume III of III	Ecology & Environment, Inc.	255
11/89	Phase II, Stage 3, Final Draft Report, Sep 87 - Dec 88, Appendices A-F	Ecology & Environment, Inc.	256
11/89	Phase II, Stage 3, Final Draft Report, Sep 87 - Dec 88, Appendix G	Ecology & Environment, Inc.	257
11/89	Phase II, Stage 3, Final Draft Report, Sep 87 - Dec 88, Appendix G (Cont.)	Ecology & Environment, Inc.	258

ADMINISTRATIVE RECORD INDEX FOR THE IRP SITE 19 RECORD OF DECISION (continued)

DOCUMENT DATE	SUBJECT OR TITLE	AUTHOR	FILE NUMBER
11/89	Phase II, Stage 3, Final Draft Report, Sep 87 - Dec 88, Appendices H-K	Ecology & Environment, Inc.	259
11/89	Conceptual Design for Remedial Activities	CDM Federal Programs Corp.	260
11/14/89	Conceptual Design for Remedial Activities Presentation Slides Package/Information	CDM Federal Programs Corp.	261
2/91	Remedial Investigation/Feasibility Study, Final Comprehensive Work Plan	CDM Federal Programs Corp.	470
3/91	Remedial Investigation/Feasibility Study, Final Quality Assurance Project Plan	CDM Federal Programs Corp.	495
3/91	Remedial Investigation/Feasibility Study, Final Field Sampling Plan, Volume I of II	CDM Federal Programs Corp.	496
3/91	Remedial Investigation/Feasibility Study, Final Field Sampling Plan, Volume II of II	CDM Federal Programs Corp.	497
11/11/91	Technical Memorandum, Rational for Comprehensive Groundwater Sampling, Dec 1991	CDM Federal Programs Corp.	667
12/91	Final Monitoring Well Replacement Plan	CDM Federal Programs Corp.	673
6/4/92	Draft Remedial Investigation Report, IRP Sites Operable Unit, Volume VII	CDM Federal Programs Corp.	815
6/4/92	Draft Remedial Investigation Report, IRP Sites Operable Unit, Volume VIII	CDM Federal Programs Corp.	816
6/4/92	Draft Remedial Investigation Report, IRP Sites Operable Unit, Volume X	CDM Federal Programs Corp.	818
11/4/92	Draft Final Remedial Investigation Report, IRP Sites Operable Unit, Baseline Risk Assessment, Volume III	CDM Federal Programs Corp.	984
11/4/92	Draft Final Remedial Investigation Report, IRP Sites Operable Unit, Volume IV, Appendices	CDM Federal Programs Corp.	985

ADMINISTRATIVE RECORD INDEX FOR THE IRP SITE 19 RECORD OF DECISION (continued)

DOCUMENT DATE	SUBJECT OR TITLE	AUTHOR	FILE NUMBER
11/4/92	Draft Final Remedial Investigation Report, IRP Sites Operable Unit, Volume V, Appendices	CDM Federal Programs Corp.	986
11/4/92	Draft Final Remedial Investigation Report, IRP Sites Operable Unit, Volume VI, Appendices	CDM Federal Programs Corp.	987
11/4/92	Draft Final Remedial Investigation Report, IRP Sites Operable Unit, Volume IX, Appendices	CDM Federal Programs Corp.	988
3/17/93	Final Remedial Investigation Report, IRP Sites Operable Unit, Volume I of II	CDM Federal Programs Corp.	1121
3/17/93	Final Remedial Investigation Report, IRP Sites Operable Unit, Volume II of II	CDM Federal Programs Corp.	1122
6/93	Final Environmental Impact Statement	Department of the United States Air Force	Not Available
2/15/94	Groundwater Monitoring Plan	CDM Federal Program Corp.	1256
3/29/95	Second Annual Groundwater Data Trends Report, Volume I	CDM Federal Program Corp.	1232
3/29/95	Final Second Annual Groundwater Data Trends Report, Volume II, Appendices A-1 and A-2	CDM Federal Program Corp.	1233
9/1/94	Draft Second Annual Groundwater Data Trends Report, Volume III, Appendices A-3 and A-4	CDM Federal Program Corp.	1234
9/27/94	Technical Memorandum, Development and Evaluation of Soil Target Cleanup Goals, Industrial/Commercial Reuse Scenario, IRP Sites Cleanup	CDM Federal Programs Corp.	1208
7/17/96	Site 19 of Proposed Plan	United States Air Force	

ATTACHMENT B

RESPONSIVENESS SUMMARY

Responses to
Department of Toxic Substance Control Comments
Dated January 10, 1995 from Manny Alonzo on the
DRAFT PARTIAL RECORD OF DECISION OPERABLE UNIT (OU) 3, IRP SITE 19 -
DRUMMED WASTE STORAGE AREA NO. 1
Prepared by CDM Federal Programs Corporation
September 22, 1995

GENERAL COMMENTS

"Cal/EPA does not object to the interim remedy proposed, deed restriction, provided there are no threats to groundwater and that Polychlorinated Biphenyls (PCBs) are the only chemicals of concern at the site. The Region IX/DTSC modified soil PRGs for PCBs developed for this site should be referenced in the Partial Record of Decision in order to document the necessity of a deed restriction. PCBs were detected in site 19 soils far exceeding Region IX/DTSC Modified soil screening values (PRGs) for unrestricted or industrial use. The situation could be exacerbated in the future should land use change and the concrete apron be removed. This could lead to future exposure above levels considered prudent by DTSC and U.S. EPA.

The document does not discuss any chemicals of concern nor presents data for any chemicals other than PCBs. All chemicals detected at the site should be discussed."

SPECIFIC COMMENTS

1. "Page 7, Table 1 (Page 8) and Figure 3 (Page 9). The concentration for PCBs reported at the site are above soil PRGs of 0.19 and 0.025 ppm for industrial and residential exposures respectively. Office of Scientific Affairs (OSA) and U.S. EPA toxicologists have jointly agreed upon these residential and industrial PRGs for PCBs at this site as documented in the memo of December 5, 1994 from Jeffrey Paull of Region IX to Steve Daneke of Norton AFB. This information should be presented in the Partial Record of Decision.

Also, it is stated that PCBs are the primary contaminant of concern at the site. The Partial Record of Decision should describe whether or not other secondary chemicals of concern are present at the site."

Section 4, page 8 discusses the soil target clean-up goals (soil TCGs), as well as, other constituents found in the soil at site 19. A second table (Table 2 on page 11) lists the maximum concentrations detected for constituents other than PCBs and the corresponding soil TCGs.

2. "Section 6.1 Health Risks. This section states that PCBs were the only contaminant detected at site 19 that was deemed contaminant of concern in the baseline risk assessment. Please clarify if other chemicals were detected at site 19, if they were eliminated as chemical of concern, and why."

Constituents, other than PCBs, that were potential chemicals of concern because concentrations were detected above the soil TCGs include ethylbenzene, xylene, and chromium. These constituents were eliminated as primary chemicals of concern because they did not appear to represent widespread contamination. For example, xylene and ethylbenzene, were very localized horizontally and vertically, and may have represented an isolated fuel spill on the aircraft flight apron. Other constituents detected in the soil, but eliminated as chemicals of concern because concentrations were detected below the soil TCGs, include trichloroethylene (TCE), 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, cadmium, copper, lead, nickel and zinc.

3. Section 6.2 Ecological Risks, Page 11. This section asserts that due to the urbanized/landscaped nature of the site and the concrete covering, no contact of contaminants with ecological receptors will occur. This section indicates that the burrowing owl is not present in any buildings associated with Site 19. Are there any other animals who may live on the edges of the concrete areas and possibly burrow into contaminated areas?

According to the Ecological Risk Assessment (CDM Federal, August 1995), there is no vegetation associated with the site and there is a complete absence of wildlife habitat. The distance to the nearest vegetation is 210 feet. This vegetation represents a clear zone adjacent to the runway which is mowed to maintain a low cover.

DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION AGENCY

2301 39

June 17, 1996

AFBCA/SPEV
305 S. Tippecanoe Ave.
San Bernardino CA 92408

CAL-EPA
Dept. of Toxic Substances Control
ATTN: Mr. John Scandura, Chief, Southern California Operations
Office of Military Facilities
245 West Broadway, Suite 425
Long Beach, CA 90802-4444

RE: Draft Final Interim Record of Decision, IRP Site 19, Norton AFB, San Bernardino, CA

This is in response to your January 31, 1996 letter regarding issues associated with referenced document. We regret the delay in providing you a response. Your comments included that you wanted the interim record of decision to clearly state who will perform any reevaluation and remediation should the future land use change at this site. We have reviewed this issue with our legal staff and the following is provided in response to your comments.

The Air Force will remain responsible to ensure that the cap is protective of human health and the environment, and that the remedy is effective. The occupant of the property, in this case the San Bernardino International Airport Authority, will maintain the concrete surface through a program of regular maintenance or repair. Should a new owner or occupant wish to change the use of the property, the owner or occupant will become responsible for evaluating the site and responsible for the remedy in compliance with all appropriate rules and regulations. If you have any questions, please contact me at (909) 382-5027.

THOMAS J. BARTOL
BRAC Environmental Coordinator
Norton Operating Location
Air Force Base Conversion Agency

98 1022

2301 40

cc:
AFBCA/SP, John Smith
AFBCA/SPE, Patti Warren
DTSC, Manny Alonzo
SBIAA, Jim Monger
IVDA, Bill Bopf

RECORD OF COMMUNITY MEETING

S19ROD2.TXT

September 12, 1996

2301 42

COMMUNITY MEETING FOR NORTON AIR FORCE BASE

IRP SITE 19

WASTE DRUM STORAGE AREA NO. 1 PROPOSED PLAN

DATE AND TIME: TUESDAY, AUGUST 27, 1996
7:00 P.M.

PLACE: SAN BERNARDINO CITY HALL
COUNCIL CHAMBERS
300 NORTH "D" STREET
SAN BERNARDINO, CALIFORNIA

REPORTED BY: PATRICIA A. SHAW, C.S.R. #5024

A P P E A R A N C E S

TOM BARTOL,
BASE ENVIRONMENTAL COORDINATOR, NORTON AIR FORCE BASE

GLENN KISTNER,
PROJECT MANAGER, U.S. ENVIRONMENTAL PROTECTION AGENCY

LINDA SPITZER,
COMMUNITY RELATIONS SPECIALIST, NORTON AIR FORCE BASE

JOHN T. WONDOLLECK,
CDM FEDERAL PROGRAMS CORPORATION

YOGESH SHETH

RICHARD HART,
MEMBER OF THE PUBLIC

PATRICIA A. SHAW,
CERTIFIED SHORTHAND REPORTER

SAN BERNARDINO, CALIFORNIA; TUESDAY, AUGUST 27, 1996

7:00 P.M.

-000-

MR. TOM BARTOL: GOOD EVENING. I AM TOM BARTOL FROM THE AIR FORCE BASE CONVERSION AGENCY, NORTON OPERATING LOCATION AT SAN BERNARDINO, CALIFORNIA.

I'D LIKE TO OPEN UP THIS PUBLIC MEETING TONIGHT ON THE AIR FORCE'S PROPOSED PLAN FOR SITE 19. BECAUSE WE HAVE ONLY ONE MEMBER OF THE PUBLIC HERE, I WILL FOREGO OUR PRESENTATION AND ASK MR. HART, WHO WISHES TO SPEAK, TO GIVE HIS COMMENTS.

MR. RICHARD HART: GOOD EVENING. RICHARD HART, 939 EAST GILBERT, SAN BERNARDINO.

I BEGAN MY RESEARCH INTO THIS PROPOSED PLAN FOR SITE 19 REUSE WHEN I SAW THIS AD IN THE PAPER. AND TO ME AND MOST OF THE COMMON CITIZENS, I BELIEVE IT SOUNDS THE SAME; IT SOUNDS BAD.

SITE 19 IS A FORMER DRUM WASTE STORAGE AREA NOW COVERED WITH CONCRETE. THE SOIL BELOW THE CONCRETE IS CONTAMINATED BY INDUSTRIAL POLUTANTS CONTAINING POLYCHLORINATED BIPHENYLS.

THE AIR FORCE PROPOSED TO LEAVE THE CONCRETE COVER OVER THE SOIL AND IMPLEMENT A DEED RESTRICTION, PRECLUDING REMOVAL OF THE CONCRETE. SO TO ME IT'S

LIKE SAYING DILUTION IS THE SOLUTION. WE'RE LEAVING A TOXIC WASTE UNDERNEATH THE NORTON AIR FORCE BASE SITE, AND IT'S JUST GOING TO SIT THERE UNTIL WE FORGET ABOUT IT AND SOMEBODY ELSE COMES ALONG AND CLEANS IT UP.

SO I RESEARCHED IT AND I STARTED TO LOOK AT WHAT PCB'S ARE. AND THEY'RE POLYCHLORINATED BIPHENYLS WHICH BY THEIR NAME MEANS CHLORINE AND BIPHENYL, AND THEY'RE TOGETHER. AND YOU HAVE POLYCHLORINATED BIPHENYLS IN RANGES LIKE 12/42, WHICH IS 12 CARBON ATOMS WITH 42 PERCENT CHLORINE BY WEIGHT; 12/54, 12 CARBON ATOMS WITH 54 PERCENT CHLORINE BY WEIGHT.

SO AT FIRST YOU CAN STATE, OKAY, YOU HAVE CHLORINE. WHAT'S CHLORINE AND BIPHENYL GOING TO BREAK DOWN INTO EVENTUALLY? I LOOKED UP THE TOXICOLOGICAL PROFILE FOR POLYCHLORINATED BIPHENYLS BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, AND IT STATES OPTIMUM RATES OF PCB DECHLORINATION USUALLY OCCURRED IN A CONCENTRATION RANGE OF 700 PARTS PER MILLION UP TO 1,000 PARTS PER MILLION. SO YOU NEED A CONCENTRATION OF PERHAPS AT LEAST 300 PARTS PER MILLION IN ORDER FOR THIS TO BREAK DOWN THE CHLORINE FROM THE BIPHENYL. I LOOKED UP THE HIGHEST CONCENTRATION LOCATED AT THE BASE AND IT WAS 62 PARTS PER MILLION. SO WE'RE NOT GOING TO HAVE A BREAKDOWN OF CHLORINE, ESCAPING CHLORINE GAS INTO THE AIR EVEN

IF YOU GET THROUGH THE CONCRETE.

SO MY NEXT PROJECT WAS TO ASK HOW DOES PCB'S AFFECT HUMAN HEALTH, AND THERE'S THREE WAYS: INHALATION, ABSORPTION, AND CONTAMINATION. THE ABSORPTION ISSUE WAS PRETTY MUCH COVERED BY THE FACT THAT THE PCB'S ARE COVERED BY 2 FEET OF CONCRETE. TO HAVE ABSORPTION YOU HAVE TO TOUCH THE PRODUCT. NOBODY'S GOING TO BE DIGGING THROUGH 2 FEET OF CONCRETE TO GET IN THERE AND TOUCH IT, SO WE'RE SAFE FROM THAT.

THE NEXT IS CONTAMINATION OF FOOD AND WATER. THIS IS WHERE MY BIG PUSH WAS, BECAUSE THE SANTA ANA RIVER IS APPROXIMATELY 100 FEET BELOW THE SURFACE OF THE SITE. SO I DID A COMPLETE HYDRAULIC SURVEY AND DISCOVERED THAT THE SOIL ZONE, WHICH IS THE TOP LAYER OF DIRT 1 TO 2 METERS BENEATH THE SURFACE, HAS A POROSITY OF 55 PERCENT IN THIS AREA AND A RETENTION FACTOR OF 15 PERCENT, WHICH MEANS THAT 55 PERCENT OF THE DIRT RIGHT BENEATH THE SURFACE OF THE EARTH THERE IS POROUS ENOUGH TO SUSTAIN HOLDING 45 PERCENT MORE MATERIAL IN IT, AND IT WILL RETAIN 15 PERCENT OF THE MATERIAL INDEFINITELY.

BENEATH THAT IS AN UNSATURATED ZONE AND AN INTERMEDIATE ZONE WHICH WAS 20 TO 30 METERS BEYOND THE SOIL ZONE. THOSE ARE NONSOLUBLE -- EXCUSE ME,

UNSATURATED, SO THEY'RE THERE AND THEY CAN ABSORB ALMOST ANY MATERIAL THAT WILL GO INTO THEM. AND I FOUND OUT THAT PCB'S ARE NONSOLUBLE WATER, OR ALMOST -- THEY'RE NOT TOTALLY NONSOLUBLE. AND THEY ALSO DON'T LIKE TO MIGRATE OUT OF THE SOIL ZONE WHICH IS THE TOP 6 FEET OF THE GROUND.

WITH A SPECIFIC GRAVITY OF 1.38 TO 1.39, EVEN WITHOUT BEING WASHED BENEATH THE SURFACE, LEAD HAS A SPECIFIC GRAVITY OF 11.34. AND YOU CAN SEE BY THE DIFFERENCE IN THE WEIGHT RATIO THAT PCB'S ARE ACTUALLY GOING TO TEND TO REMAIN TOWARD THE SURFACE AND THEY WON'T BE GOING ANY DEEPER.

SO THAT LEFT ME WITH MY LAST THING, INHALATION. I CALLED PORTLAND CEMENT AND ASKED THEM HOW LONG THEIR CEMENT'S GOING TO LAST OUT THERE AT THE BASE. THEIR ANSWER WAS: INDEFINITELY. IT SHOULD NEVER WEAR OUT. IT WON'T LEAK. IT'S NOT TOTALLY IMPERVIOUS, BUT IT'S PRETTY CLOSE.

SO THEN I WAS WONDERING HOW YOU COULD INHALE THIS STUFF. YOU COULD HAVE CRACKS IN THE CONCRETE, WHICH I'M ASSUMING THAT THE NORTON REUSE COMMITTEE'S GOING TO MAKE SURE THAT THIS CONCRETE'S MAINTAINED. AND YOU ALSO HAVE EXHALATION THROUGH PLANTS, AND ON NORTON AIR FORCE BASE THERE'S A PARTICULAR PLANT CALLED THE WOOLLY STAR. AND IT'S AN ENDANGERED

SPECIES. AND IT'S AT THE END OF THE RUNWAY AREAS, IN BETWEEN RUNWAYS. SO YOU CAN'T TAKE THE WOOLLY STAR OUT TO PREVENT IT FROM GETTING DOWN INTO THE PCB'S. HOWEVER, IN THAT PARTICULAR AREA, THE PCB'S AREN'T MIGRATING THROUGH, SO THERE'S NO PROBLEM. THEY'RE SET THERE.

MY WHOLE CONCLUSION AFTER COMING DOWN HERE TO RAIL AGAINST THIS PROJECT IS THE FACT THAT IT'S ACTUALLY A GOOD PROJECT AND THERE'S NO OTHER WAY TO DO IT BETTER. EITHER REMOVING THE SOIL NOW, EVEN THOUGH IT'S NOT GOING TO HARM ANYBODY, JUST TO GET RID OF IT, IT WOULD PUT MORE PCB'S IN THE AIR WITH HEAVY-EQUIPMENT DUST AND WATER. TO WATER DOWN THE NEW SOIL IT REPLACED WOULD ACTUALLY DRAG PCB'S DOWN TO THE WATER TABLE. THE OPTIMUM SOLUTION IS TO LEAVE IT ALONE.

THANK YOU.

MR. TOM BARTOL: THANK YOU, MR. HART.

THUS HAVING NO OTHER COMMENTERS, AT THIS POINT WE WILL CONCLUDE THE MEETING; AND THE AIR FORCE REGULATORY AGENCIES WILL PUT TOGETHER OUR FINAL DOCUMENTATION ON THIS PROJECT. THANK YOU.

(THE PROCEEDINGS CONCLUDED AT 7:15 P.M.)

--000--

STATE OF CALIFORNIA)
) SS.
COUNTY OF SAN BERNARDINO)

I, PATRICIA A. SHAW, CERTIFIED SHORTHAND REPORTER, DULY QUALIFIED IN AND FOR THE STATE OF CALIFORNIA, DO HEREBY CERTIFY:

THAT THE PUBLIC MEETING PROCEEDINGS IN THE FOREGOING ACTION WAS TAKEN BEFORE ME AT THE TIME AND PLACE HEREIN SET FORTH;

I FURTHER CERTIFY THAT THE TESTIMONY AND PROCEEDINGS WERE REPORTED STENOGRAPHICALLY BY ME AND LATER TRANSCRIBED BY COMPUTER UNDER MY DIRECTION;

THAT THE TRANSCRIPT IS A TRUE AND CORRECT TRANSCRIPTION OF MY STENOGRAPHIC NOTES.

I FURTHER CERTIFY THAT I AM NEITHER ATTORNEY OR COUNSEL FOR, NOR RELATED TO OR EMPLOYED BY ANY OF THE PARTIES TO THE ACTION IN WHICH THIS PROCEEDING IS TAKEN.

IN WITNESS WHEREOF, I HAVE SUBSCRIBED MY NAME THIS 28th DAY OF AUGUST, 1996.

Patricia A. Shaw

PATRICIA A. SHAW
CERTIFIED SHORTHAND REPORTER, #5024

FINAL PAGE

ADMINISTRATIVE RECORD

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